AF Image 3643

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TRANSMITTAL FORM

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Application Number	10/075,096
Filing Date	October 29, 2001
First Named Inventor	Carl E. Whitcomb
Art Unit	3643
Examiner Name	Son T. Nguyen
Total Number of Pages in This Submission: 37	Attorney Docket Number: WHIT/0002

ENCLOSURES *(Check all that apply)*

- [x] Fee Transmittal Form
  - [ ] Fee Attached
- [ ] Amendment/Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Response to Missing Parts/ Incomplete Application
  - [ ] Response to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
- [ ] After Allowance communication to Technology Center (TC)
- [ ] Appeal Communication to Board of Appeals and Interferences
- [x] Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
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- [ ] Status Letter
- [x] Other Enclosure(s) (please Identify below):
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Remarks

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Firm or Individual name	Frank J. Campigotto
Signature	
Date	April 16, 2004

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FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☑ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 330.00

Complete if Known	
Application Number	10/075,096
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METHOD OF PAYMENT *(check all that apply)*

☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

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Deposit Account Name: STREETS & STEELE

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($)

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

		Extra Claims		Fee from below	Fee Paid
Total Claims	-20** =		X		=
Independent Claims	- 3** =		X		=
Multiple Dependent					=

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($)

***or number previously paid, if greater; For Reissues, see above*

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	330.00
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid **SUBTOTAL (3)** ($) 330.00

SUBMITTED BY				(Complete *(if applicable)*)	
Name (Print/Type)	Frank J. Campigotto	*Registration No. (Attorney/Agent)*	48,130	*Telephone*	713.939.9444
Signature				*Date*	April 16, 2004

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellant: Carl. E. Whitcomb §

Serial No.: 10/075096 § Examiner: Son T. Nguyen

Filed: October 29, 2001 § Group Art Unit: 3643

For: Root Growth Barrier §

CERTIFICATE OF MAILING
37 C.F.R. 1.8

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4/16/04 Yolanda Charles
Date Signature

BRIEF OF APPELLANT

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TABLE OF CASES

STATUTES

REGULATIONS

Appellant timely filed a Notice of Appeal to this Board on April 5, 2004 appealing the decision of the Examiner in the Final Office Action dated January 14, 2004, for the above captioned application. Appellant hereby submits this Brief of Appellant, in triplicate, pursuant to 37 CFR 1.192.

(1) Real Party in Interest

The real party of interest in this action is Lacebark, Inc., the recorded assignee of the entire right, title and interest in and to the patent application now under appeal before this Board. Lacebark, Inc. is a corporation of the State of Oklahoma, having a place of business at Stillwater, Oklahoma 74705.

(2) Related Appeals and Interferences

There are no other appeals or interferences known to Appellant, Appellant's legal representative, or Assignee that will affect or be directly affected by or have a bearing upon the Board's decision in the pending appeal.

(3) Status of the Claims

The status of all claims in the application under appeal is as follows: claims 1-65 stand rejected. All of the rejected claims 1-65 are under appeal.

(4) Status of Amendments

Appellant proposed no amendment in response to the Final Office Action on which this appeal is filed. There are no outstanding amendments that have not been entered by the Examiner.

(5) Summary of the Invention

Appellants identified a need for an apparatus and methods for using a root growth barrier or container for the purposes of encouraging healthy and abundant root growth and permitting

optimal development and growth of lateral roots and root tips. (Specification, p. 4, ln. 1-3). Appellant claims a root growth barrier, apparatus, and method comprising, *inter alia*, a root-tip-trapping material bonded to a layer of root-impenetrable material. (Claims 1, 29, 46, and 48). Appellant also claims a root growth barrier comprising, *inter alia*, a polymer sheet bonded to a porous fabric. (Claims 49 and 57). In another embodiment, Appellant claims a method, comprising, *inter alia*, placing growing medium in a container comprising a root impenetrable outer layer bonded to an inner root-penetrable material. (Claim 47). FIG. **3** provides a view of the root growth barrier showing the bilayer structure. (Specification, p. 10, ln. 4-7). In a preferred embodiment of the invention, the bonding interface **22** between the layers is formed by laminating the root-impenetrable material **16** onto a fabric root-tip-trapping material **18**. *Id.*

Each of the independent claims 1, 29, 46, 47, 48, 49 and 57 include the limitation that the layers of the material, *i.e.*, the root-tip-trapping material and the root impenetrable material, are *bonded* together. The bonding may be accomplished in a variety of ways, such as lamination or by means of an adhesive. (Specification, p. 5, Detailed Description, ln. 4-5). Any glue may be used provided it is water insoluble and any lamination technique may be used provided that the lamination temperature does not melt the root-tip-trapping material. (Specification, p. 7, ln. 16-18). Alternatively, one of the layers may be formed directly onto the other layer, such as the root-impenetrable layer being sprayed over the root-tip-trapping layer. It is an important aspect of the invention that the root growth barrier improves root branching without air root pruning or constriction pruning. (Specification, p. 6, ln. 5-6).

Each of the independent claims 1, 29, 46, 47, 48, 49 and 57 include the limitation of a root-tip-trapping material or a porous fabric, this being the material that is bonded to a root-impenetrable material. The layer or layers of root-tip-trapping material may be any fabric that,

when bonded to a layer of a root-impenetrable material on one side surface (*i.e.*, face-to-face), will provide the bilayer composite with the capacity to trap an actively growing root tip between the fabric's fibers (within the fabrics openings) and against the root impenetrable material. (Specification, p. 6, ln. 7-11). The fabric fibers need only be thick enough so as to trap the root-tip against the root-impenetrable material to stop further root extension and the fibers may be free, looped, knitted, woven or spun bonded so long as the fibers do not deform or stretch when a root pushes against it and it provides for a very high number of root tips to become trapped in the openings on the fabric surface. (Specification, p. 6, ln. 11-14).

As disclosed in the Specification,

> Figure **4** is a partial perspective view of a root growth barrier **24** having a root-tip-trapping layer of a knit-type fabric **26** providing a high-density of discrete root-tip-trapping elements **28**. Plant roots **30** extend through a growth medium (not shown) to penetrate the root-tip-trapping layer **26** and root tips **34** that become trapped against the root-impenetrable layer **16**. As a result of root tips **34** becoming trapped, the root tips **34** swell somewhat, become more thick-bodied, give up control and allow side branches **31** to grow. This new root side branching occurs back approximately 4 inches from the tumescent root tip. These new side branches undergo a similar process when they encounter the barrier **24**.

Id. at p. 10, ln. 8-15.

Each of the independent claims 1, 29, 46, 47, 48, 49 and 57 further include the limitation of a root impenetrable material, which claims 49 and 57 claim in the form of a polymer sheet or a polyethylene sheet. The root impenetrable sheet may be any material that does not permit root penetration, such as films, dense fabrics, aluminum or other metal foils, and plastic sheets and is preferably water-impenetrable to prevent water loss therethrough. (Specification, p. 6, last paragraph). The root-impenetrable layer may be formed by any composition, including polymers, inorganics, and composites, with polymers being the most preferred. (Specification, p.

7, ln. 1-2). Polymers such as vinyl, or polyolefins such as polyethylene, polypropylene, polyisobutene, poly but-1-ene, and poly 4-methyl-pent-1-ene may be used. (Specification, p. 7, ln. 2-4).

The root-tip-trapping material that is bonded to a root impenetrable material may also be formed into containers wherein plants may be placed and grown for shorter or longer periods of time. (Specification, p. 7, ln. 21-23). A container may also be formed of the material to function as a "grow bag" in the field soil, advantageous because the roots are restricted to the container. (Specification, p. 8, ln. 14-23).

As disclosed in the Specification,

> Figure **5** is a partial cross-sectional view of a prior art air root pruning material **40** suitable for forming a container. The roots **30** are allowed to extend through the material **40** such that the root tips **34** are exposed to the surrounding air where the root tips become dehydrated and die. Side branches **36** then grow within the material **40** and may later become air root pruned as well. It should be noted that substantial growth of root side branches **36** occurs within the material **40**. However, because the roots pass through the material **40**, most of these roots will be broken off when the material is removed. It should also be noticed that there is no barrier to water loss. Furthermore, if the material **40** is used inside a conventional plastic container, the roots will extend through the material and begin to circle against the container wall.
>
> Figure **6** is a partial cross-sectional view of the root growth barrier **12** of Figure **3** illustrating how root tips **34** of the roots **30** enter into the layer of root-tip-trapping material **18** and impinge upon the root-impenetrable material **16** to become trapped. As in Figure **4**, it is an important aspect of the invention that the root tips **34** swell and allow enhanced root side branches **31** to grow within the growth medium **32**. Accordingly, when the plant is removed from the root growth barrier **12**, or a container made there from, the roots **31** will not be lost. In fact, the barrier **12** may be easily peeled away from the roots with little or no damage to the roots.

Id. at p. 10.

(6) ISSUES

The issues under appeal are as follow:

(a). whether claims 1, 2, 4, 13-16, 18, 19, 29, 30, 41, 46, 48, 49, 53 and 63 should stand rejected under 35 U.S.C. 102(b) as being anticipated by UK Patent Application No. 2, 073, 576A of Berlit, *et al.*;

(b). whether claims 3, 5-7, 25, 26, 31, 32, 50, 51, 64 and 65 should stand rejected under 35 U.S.C. 103(a) as being unpatentable over UK Patent Application No. 2,073,576A of Berlit, *et al.*;

(c). whether claims 8-11, 33-35, 42, 44 and 52 should stand rejected under 35 U.S.C. 103(a) as being unpatentable over UK Patent Application No. 2,073,576A of Berlit, *et al.* in view of U.S. Patent No. 6,202,348 issued to Reiger;

(d). whether claim 12 should stand rejected under 35 U.S.C. 103(a) as being unpatentable over UK Patent Application No. 2,073,576A of Berlit, *et al.* as modified by U.S. Patent No. 6,202,348 issued to Reiger and further in view of U.S. Patent No. 5,311,700 issued to Thomas;

(e). whether claims 17, 21, 22, 24 and 54 should stand rejected under 35 U.S.C. 103(a) as being unpatentable over UK Patent Application No. 2,073,576A of Berlit, *et al.* in view of European Patent Application No. 300 578A of Van der Goorbergh;

(f). whether claims 20, 23, 27, 28, 36-40, 55 and 56 should stand rejected under 35 U.S.C. 103(a) as being unpatentable over UK Patent Application No. 2,073,576A of Berlit, *et al.* in view of U.S. Patent No. 5,852,896 issued to Flasch;

(g). whether claim 43 should stand rejected under 35 U.S.C. 103(a) as being unpatentable over UK Patent Application No. 2,073,576A of Berlit, *et al.* in view of U.S. Patent No. 3,094,810 issued to Kalpin;

(h). whether claim 45 should stand rejected under 35 U.S.C. 103(a) as being unpatentable over UK Patent Application No. 2, 073, 576A of Berlit, *et al.* as modified by U.S. Patent No. 6,202,348 issued to Reiger and further in view of U.S. Patent No. 6,223,466 issued to Billings;

(i). whether claims 47, 57, 59, 60-62 should stand rejected under 35 U.S.C. 103(a) as being unpatentable over UK Patent Application No. 2, 073, 576A of Berlit, *et al.* in view of U.S. Patent No. 6,202,348 issued to Reiger and U.S. Patent No. 5,852,896 issued to Flasch; and

(j). whether claim 58 should stand rejected under 35 U.S.C. 103(a) as being unpatentable over UK Patent Application No. 2, 073, 576A of Berlit, *et al.* as modified by U.S. Patent No. 6,202,348 issued to Reiger and U.S. Patent No. 5,852,896 issued to Flasch and further in view of European Patent Application No. 300 578A of Van der Goorbergh.

(7) GROUPING OF THE CLAIMS

a. Claims 1, 2, 4, 13-16, 18, 19, 29, 30, 41, 46, 48, 49, 53 and 63 are directed to a root growth barrier and methods for its use. Claims 1, 29, 46, 48, and 49 are independent claims. The claims in this group stand or fall together.

b. Claims 3, 5-7, 25, 26, 31, 32, 50, 51, 64 and 65 are directed to a root growth barrier and all depend, either directly or indirectly, from independent claims 1, 29 or 49. The claims in this group stand or fall together.

c. Claims 8-11, 33-35, 42, 44 and 52 are directed to a root growth barrier and all depend, either directly or indirectly, from independent claims 1, 29 or 49. The claims in this group stand or fall together.

d. Claim 12 is directed toward a root growth barrier and depends indirectly from independent claim 1.

e. Claims 17, 21, 22, 24 and 54 are directed to a root growth barrier and all depend, either directly or indirectly, from independent claims 1 or 49. The claims in this group stand or fall together.

f. Claims 20, 23, 27, 28, 36-40, 55 and 56 are directed to a root growth barrier and all depend, either directly or indirectly, from independent claims 1 or 49. The claims in this group stand or fall together.

g. Claim 43 is directed towards a root growth barrier and depends from independent claim 29.

h. Claim 45 is directed towards a root growth barrier and depends from independent claim 29.

i. Claim 47, 57, 59, 60-62 are directed towards a root growth barrier and a method for use. Claims 47 and 57 are independent claims. Claims 59, 60 and 62 depend from independent claim 57. The claims in this group stand or fall together.

j. Claim 58 is directed towards a root growth barrier and depends from independent claim 57.

(8) ARGUMENT

APPLICABLE LAW

A claimed invention is unpatentable if the differences between it and the prior art "are such that the subject matter *as a whole* would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. 103(a) [emphasis added]. The ultimate determination of whether an invention is or is not obvious is a legal conclusion based on underlying factual inquiries including: (1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art;

and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966).

To establish a *prima facie* case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 291 (CCPA 1974). All words in a claim must be considered in judging the patentability of that claim against the prior art. *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970).

The Federal Circuit has made clear that all claim limitations must be considered and that it is impermissible to merely consider the "idea" of an invention. In *Jones v. Hardy*, 727 F.2d 1524 (Fed. Cir. 1984), the Federal Circuit stated:

> Under the patent statute, Title 35 U.S.C., "ideas" are not patentable; claimed structures and methods are. Reducing a claimed invention to an "idea," and then determining patentability of that "idea" is error. Analysis properly begins with the claims, for they measure and define the invention.

Id. at 1527 [citations omitted].

Furthermore, regarding the requirement that all the claim limitations must be taught or suggested by the prior art to establish a *prima facie* case of obviousness, the *Jones* Court stated:

> The "difference" may have seemed slight (as has often been the case with some of history's greatest inventions, *e.g.* the telephone) but it may also have been the key to success and advancement in the art resulting from the invention. Further, it is irrelevant in determining obviousness that all or all other aspects of the claim may have been well known in the art.

Id. at 1528.

An additional requirement for providing a *prima facie* case of obviousness is that the Examiner must provide a basis for combining or modifying the cited references. The mere fact that references can be combined or modified does not render the resultant combination obvious

unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990).

The case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching, suggestion, or motivation to combine prior art references. *See, e.g., C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998) (describing "teaching or suggestion or motivation [to combine]" as an "essential evidentiary component of an obviousness holding"); *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1225, 1232 (Fed. Cir. 1998) ("the Board must identify specifically....the reasons one of ordinary skill in the art would have been motivated to select the references and combine them"); and *In re Fritch*, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (examiner can satisfy burden of obviousness in light of combination "only by showing some objective teaching [leading to the combination]").

Evidence of a suggestion, teaching or motivation to combine references may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or from the nature of the problem to be solved. *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996). The invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time. *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 138, 227 USPQ 543, 547 (Fed. Cir. 1985).

In the case *In re Kotzab*, 217 F.3d 1365 (Fed. Cir. 2000), the Court states:

> Most, if not all inventions arise from a combination of old elements . . . Thus, every element of a claimed invention may often be found in the prior art. However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. Rather, to establish obviousness based on a combination of the elements disclosed in the prior art,

> there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant.

Id. at 1395.

The *Kotzab* Court further distinctly points out the requirement that particular findings are required as to the justification for modifying the teachings of a reference. The Court stated:

> Even when obviousness is based on a single prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference. The motivation, suggestion or teaching may come explicitly from a statement in the prior art, the knowledge of one of ordinary skill in the art, or, in some cases the nature of the problem to be solved. In addition, the teaching, motivation or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references . . . The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art . . . Whether the Board relies on an express or an implicit showing, it must provide particular findings related thereto. Broad conclusory statements standing alone are not evidence.

Id. at 1370.

Further considering the impermissible use of hindsight obviousness analysis in the case *In re McLaughlin*, 443 F.2d 1392 (CCPA 1971), the Court stated:

> It should be too well settled now to require citation or discussion that the test for combining references is not what the individual references themselves suggest but rather what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. Any judgment of obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made *and does not include knowledge gleaned only from applicant's disclosure*, such a reconstruction is proper.

Id. at 1395, emphasis added.

ANALYSIS

Issue (a): Whether claims 1, 2, 4, 13-16, 18, 19, 29, 30, 41, 46, 48, 49, 53 and 63 should stand rejected under 35 U.S.C. 102(b) as being anticipated by UK Patent Application No. 2, 073, 576A of Berlit, *et al.*

The Berlit patent application No. 2,073,576A (Berlit), discloses a plant container of thermoplastic synthetic material having a one-piece bottom and wall formed of a laminate that contains an opaque layer **11** and an outer decorative layer **20** and optionally may further provide a colored layer between the opaque and decorative layers. (Berlit, Abstract). Berlit discloses a thin walled plant container that overcomes the problem of other thin walled plant containers – *i.e.,* the problem being that other thin walled plant containers transmit too much light to the root systems due to the translucent nature of these other containers' thin walls, thereby harming the root systems. (Berlit, p. 1, ln. 14-24).

The opaque layer is formed as the support layer and is overlapped with a thin decorative layer. (Berlit, p. 1, ln. 50-53). The wall structure of Berlit can be formed of three layers or four layers, wherein a color shielding layer may be laminated between the opaque layer and the thin decorative layer and/or an inner layer may be included that is benevolent towards roots. (Berlit, p. 1, ln. 54-63).

Berlit further discloses that the container may be made of PVC, polystyrene or polypropylene. (Berlit, p. 1, ln. 63-66). FIGS. **4** and **5** show a wall construction in which the opaque inner layer **11** is overlaid by an additional layer **14** that consists of a thermoplastic synthetic material non-harmful or beneficial to roots and is *manufactured by co-extrusion.* (Berlit, p. 1, ln. 123-129, emphasis added). Each of the layers **11, 12, 13, 14** can be of the same

material or different materials, for example PVC, polystyrene or polypropylene. (Berlit, p. 1, ln. 130 – p. 2, ln. 2).

Appellant claims a root growth barrier comprising a layer of root-tip-trapping material bonded to a layer of a root-impenetrable material. (Claims 1, 29, 46, and 48). Appellant also claims a polymer sheet having a surface bonded to a porous fabric. (Claim 49).

The Examiner asserts that Berlit discloses a root growth barrier comprising a layer of a root-tip-trapping material **11, 14** bonded to a layer of a root-impenetrable material **12, 13**. (Final Office Action, ¶ 2, reference numbers used by Berlit).

MPEP § 2131 provides:

> "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the . . . claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, *i.e.*, identity of terminology is not required. *In re Bond*, 910 F.2d 831 (Fed. Cir. 1990).

Furthermore, the Federal Circuit held in *Paperless Accounting, Inc. v. Bay Area Rapid Transit Systems*, 804 F.2d 659 (Fed. Cir. 1986): "[A] §102(b) reference must sufficiently describe the claimed invention to have placed the public in possession of it." *Id.* at 665.

Appellant respectfully asserts that Berlit does not describe, either expressly or inherently, each and every element claimed by Appellant. Berlit does not disclose the limitations claimed by Appellant of a root-tip-trapping material (claims 1, 29, 46, and 48) or of a porous fabric (claim 49). In support of the Examiner's assertion that the opaque inner layer **11** and the thermoplastic layer beneficial to roots **14** disclosed by Berlit are a root-tip-trapping material and a porous fabric, the Examiner explains that because Berlit discloses that the layers **11, 14** may be

made of polypropylene, and because polypropylene may be made into a fabric, that Berlit therefore discloses that the layers **11, 14** are made of fabric. (Final Office Action, ¶ 13, first paragraph).

In particular, the Examiner asks why Appellant's claimed material, *i.e.*, polypropylene, is a fabric but Berlit's is not? (Final Office Action, p. 10, ln. 4-6). The Examiner states that Appellant's claim language broadly claimed polypropylene and therefore, the Examiner interprets the claim as broadly as being claimed. *Id.*

Appellant respectfully points out that Appellant's independent claims do not claim polypropylene and that polypropylene is claimed in dependent claim 9. The relevant claims are set out below:

> Claim 4. The barrier of claim 1, wherein the root-tip-trapping material is a porous fabric.
>
> Claim 8. The barrier of claim 4, wherein the porous fabric is a spun bonded, needle punched fabric.
>
> Claim 9. The barrier of claim 8, wherein the porous fabric is selected from polyester, polypropylene, or other olefin fiber.

In this analysis it should be clear that the reason Applicant's polypropylene is fabric is that the claim language specifically says so. As defined in 37 C.F.R. 1.75(c): ". . . Claims in dependent form shall be construed to include all the limitations of the claim incorporated by reference into the dependent claims." Therefore, when Appellant claims polypropylene in claim 9, the limitation of "a porous fabric" of claim 4 and the limitation of being "a spun bonded, needle punched fabric" of claim 8 are included as limitations in claim 9. Therefore, Appellant does not broadly claim polypropylene as the Examiner states, but instead claim 9 covers a porous spun bonded, needle punched fabric of polypropylene fiber.

Berlit discloses that the layers of laminates making up the thin walled plant container are co-extruded. Berlit expressly states that the two layered construction of Figure **2** is formed by "co-extrusion." (Berlit, pg. 1, lines 105-107). Furthermore, "[t]he laminate shown in Figures **3** to **5** is also manufactured by co-extrusion." (Berlit, pg. 1, lines 127-129). The McGraw-Hill Dictionary of Scientific and Technical Terms, Sixth Edition, defines *extrusion* as "a process in which a hot or cold semi soft solid material, such as metal or plastic, is forced through the orifice of a die to produce a continuously formed piece in the shape of the desired product." The same dictionary defines *co-extrusion* as "extrusion-forming of plastic or metal products in which two or more compatible feed materials are used in physical admixture through the same extrusion die."

Accordingly, the fact that the layers are *co-extruded*, along with the illustrations of Figures **2-5**, shows that the thermoplastic layers disclosed by Berlit are solid and form relatively smooth and continuous interfaces between layers and relatively smooth and continuous inner and outer surfaces. (Berlit, Figures **2-5**).

Berlit does not describe, either expressly or inherently, a root-tip-trapping layer or an inner layer that is a fabric as is required for a *prima facie* case of anticipation. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d at 731. Appellant respectfully asserts that the Examiner has stretched well beyond reason to determine that the co-extruded layers of Berlit's thin walled plant container include polypropylene fabric simply because polypropylene *may* be formed into fibers that may then be woven into a porous fabric. In the absence of a specific statement by Berlit that the polypropylene is a porous fabric, it is improper to infer that Berlit's polypropylene layer is a fabric, especially when Berlit discloses that the laminates are co-extruded, which cannot occur if one of the materials is a *porous fabric.*

A §102(b) reference must sufficiently describe the claimed invention to have placed the public in possession of it. *Paperless Accounting, Inc.* 804 F.2d. at 665. Disclosing only that a thin walled plant container may be co-extruded with polypropylene does not describe Appellant's claimed invention sufficiently to have placed the public in possession of it. Berlit does not disclose that the co-extruded laminates forming the thin walled container includes either a porous fabric or a root-tip-trapping material, both limitations that Appellant claims.

Berlit fails to describe, either expressly or inherently, a porous fabric or a root-tip-trapping material, and therefore Berlit does not describe each and every limitation claimed by Appellant. Furthermore, Berlit fails to sufficiently describe Appellant's claimed invention to have placed the public in possession of it. For these failures, Appellant asserts that a *prima facie* case of anticipation has not been presented by the Examiner and therefore, Appellant respectfully requests that the Board find that Appellant's independent claims 1, 29, 46, 48, and 49 are patentable in light of the foregoing analysis and further, that claims 2, 4, 13-16, 18, 19, 30, 41, 53 and 63, which depend therefrom, are patentable as depending from the allowable independent claims.

Issue (b): Whether claims 3, 5-7, 25, 26, 31, 32, 50, 51, 64 and 65 should stand rejected under 35 U.S.C. 103(a) as being unpatentable over UK Patent Application No. 2, 073, 576A of Berlit, *et al.*

The claims at issue in this claim grouping all depend, either directly or indirectly, from independent claims 1, 29 or 49. Issue (b) is, therefore, moot should the Board find that claims 1, 29 and 49 are patentable.

The basis for the § 103(a) rejection of these dependent claims as being unpatentable over Berlit, the only reference given by the Examiner, is that each of these dependant claims are obvious because "where routine testing and general experimental conditions are present, discovering the optimum or workable ranges until the desired effect is achieved involves only routine skill in the art." (Final Office Action, ¶ 4).

As the Examiner states, Berlit is silent:

1. as to Appellant's claims 3 and 65, the root-tip-trapping material being greater than 10 or 100 root-tip-trapping elements per square inch;
2. as to Appellant's claims 5, 6 and 50, the porous fabric (polypropylene) having a certain or specific weight per square yard;
3. as to Appellant's claims 7 and 51, the porous fabric (polypropylene) having openings between 1/16 and 1/4 inch;
4. as to Appellant's claims 25, 26 and 64, the root-impenetrable material having a certain or specific thickness; and
5. as to Appellant's claims 31 and 32, the container having a certain or specific diameter.

Final Office Action, ¶ 4.

In the case *In re Lee*, 277 F.3d 1338 (Fed. Cir. 2002), the Federal Circuit held:

> When patentability turns on the question of obviousness, the search for and analysis of the prior art includes *evidence* relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness.

Id. at 1343, emphasis added.

In the case *In re Kotzab*, 217 F.3d 1365 (Fed. Cir. 2000), the Court distinctly points out the requirement that particular findings are required as to the justification of modifying references, even when obviousness is based on a single prior art reference. The Court stated:

> Even when obviousness is based on a single prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of the prior art reference. The motivation, suggestion or teaching may come explicitly from statement in the prior art, the

> knowledge of one of ordinary skill in the art, or, in some cases the nature of the problem to be solved. In addition, the teaching, motivation or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references . . . The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art . . . Whether the Board relies on an express or an implicit showing, it must provide particular findings related thereto. *Broad conclusory statements standing alone are not evidence.*

Id. at 1370, emphasis added.

Furthermore, to establish a *prima facie* case of obviousness, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 291 (CCPA 1974). All words in a claim must be considered in judging the patentability of that claim against the prior art. *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970).

Berlit does not teach, suggest or otherwise disclose root-tip-trapping material or a porous fabric as part of the laminate materials forming the Berlit plant container, both of which are limitations claimed by Appellant. (Claims 1, 29, 49). Berlit does not teach, suggest or otherwise disclose that root tips may be trapped or that there is any benefit to trapping root tips. Berlit merely discloses a thin walled container for growing a plant to solve the problem of excessive light being transmitted through thin walled containers, which Berlit discloses causes damage to the root systems of the plants planted in the container. (Berlit, p. 1, ln. 14-24).

The Examiner states:

> The surface in contact with a growing medium of the root-tip-trapping material **11** in Berlit is not extruded, so why can it not trap root tip since the material is a fabric as stated above of the definition of polypropylene. The only extruded area is between the layers for a bonding so the Examiner can see that in this bonded area, the surface is relatively smooth and continuous interfaces between layers would not trap root tips. The root tips would grow into the layer **11** and would not travel anymore since layer **12** is

> root impermeable material due to the extrusion method as explained by Applicant. Therefore, layer **12** of Berlit is the root impenetrable material and layer **11** is the root-tip-trapping material. The only zone or area that would not trap roots is where layers **11** and **12** are bonded, which is not what the Examiner is calling root-tip-trapping material as explained in the above rejection.

(Final Office Action, p. 10, ln. 18-29).

In contrast to the Examiner's statement above, Berlit states: "On top of this opaque inner layer **11** is applied by co-extrusion a decorative layer **12** as the outer layer." (Berlit, p. 1, ln. 106-107). Berlit, therefore, does not disclose that the opaque inner layer **11** is not extruded. The Examiner gives no citation from Berlit to support the Examiner's position that the opaque inner layer **11** is not extruded and may, therefore, be a fabric. Appellant respectfully asserts that the statement above by the Examiner is improperly based upon a modification of Berlit using information gleaned only from Appellant's specification and based upon the impermissible use of Appellant's Specification as a blueprint to modify Berlit.

The statute requires that, for a showing of obviousness, "the subject matter *as a whole* would have been obvious." 35 U.S.C. 103(a) [emphasis added]. As the Federal Circuit has stated, "Focusing on the obviousness of substitutions and differences instead of on the invention *as a whole* . . . was a legally improper way to simplify the difficult determination of obviousness." *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1383 (Fed. Cir. 1986) [emphasis added].

Appellants respectfully assert that the Examiner has lost track of the "subject matter as a whole" and has impermissibly focused on the obviousness of substitutions and differences instead of focusing on the invention as a whole. Using impermissible hindsight analysis, the Examiner has sought to find in the cited references the limitations claimed by Appellants without

regard either to what the cited references teach or what the Appellants' claimed invention is as a whole.

Because Berlit does not disclose each and every limitation claimed by Appellant in independent claims 1, 29 and 49, a *prima facie* case of obviousness has not been presented for the dependent claims of this claim grouping that depend therefrom. Furthermore, the Examiner has failed to articulate a justification for modifying Berlit to show that the Examiner has not impermissibly used hindsight obviousness analysis.

The test for an implicit showing of the justification to modify a cited reference is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art . . . Whether the Board relies on an express or an implicit showing, it must provide particular findings related thereto. *Kotzab*, 217 F.3d 1365 at 1370.

Appellant discloses and claims a root growth barrier comprising a layer of a root-tip-trapping material bonded to a layer of root-impenetrable material. (Claims 1, 29, 49). Berlit is not trying to solve the same problem as addressed by Appellant. Appellant has met a need for a root growth barrier that encourages healthy and abundant root growth and permits optimal development and growth of lateral roots and root tips. (Specification, p. 4, ln. 1-3). Berlit has attempted to solve the problem associated with thin-walled containers that allowed too much light to penetrate the thin walls and damage the root systems contained in the plant containers.

Berlit does not mention or address the same problem sought to be solved by Appellant. Berlit neither teaches, suggests, nor otherwise discloses any information concerning root-tip-trapping materials or porous fabrics that achieve root-tip-trapping. One having ordinary skill in the art, without using Appellant's own specification as a blueprint, could not possibly modify

Berlit to an extent that makes Appellant's claimed invention obvious. The Examiner's statement that "where routine testing and general experimental conditions are present, discovering the optimum or workable ranges until the desired effect is achieved involves only routine skill in the art," is a broad conclusory statement that is impermissible under *Kotzab, supra*, and not a particular finding or evidence of justification for modifying Berlit.

Instead, Appellant respectfully asserts that the Examiner has fallen under the subtle but powerful attraction of a hindsight-based obviousness analysis and impermissibly used information gleaned only from Appellant's specification in modifying Berlit. As the *McLaughlin* Court held, any judgment of obviousness cannot be based on knowledge gleaned only from the specification of the applicant. *McLaughlin,* 443 F.2d at 1395. Therefore, Appellant respectfully asserts that the Examiner has failed to provide sufficient justification to modify Berlit and has instead fallen into the hindsight obviousness trap by using information gleaned only from Appellant's specification in rejecting the claims in this grouping.

The Examiner has not cited any portion of Berlit that teaches, suggests or otherwise discloses that the inner laminated surface of the thin walled plant container disclosed by Berlit may be made of a root-tip-trapping material or of a porous fabric, both limitations claimed by Appellant. Without the use of Appellant's Specification to glean information contained only therein, the Examiner is unable to justify the modification that the Examiner made to Berlit (i.e., to convert Berlit's co-extruded laminates into Appellant's claimed root-tip-trapping material or porous fabric) using only the knowledge of one having ordinary skill in the art, the nature of the problem to be solved, or the teachings or suggestions found in the cited prior art.

Therefore, Appellant asserts that a *prima facie* case of obviousness has not been presented because (1) Berlit does not suggest, teach or otherwise disclose each and every

limitation claimed by Appellant, (2) the Examiner has not provided evidence to justify the modification made to Berlit in rejecting Appellant's claimed invention, and (3) the Examiner has impermissibly used information gleaned only from Appellant's specification in rejecting Appellant's claimed invention. Therefore, Appellant respectfully requests the Board to find claims 1, 2, 4, 13-16, 18, 19, 29, 30, 41, 46, 48, 49, 53 and 63 patentable.

Issues (c) – (h): Each of the claims in the claim groups of Issues (c) – (h) shown above depend, either directly or indirectly, from independent claims 1, 29 and 49. For the reasons given, *supra*, Appellant respectfully asserts that the Examiner has not shown that Berlit teaches, suggests or otherwise discloses a root-tip-trapping material or a porous fabric as claimed by Applicant in independent claims 1, 29 and 49. Therefore, except for the Examiner's impermissible use of hindsight obviousness analysis to modify Berlit by using information gleaned only from Appellant's Specification and using that information as a blueprint to modify Berlit into the claimed invention, the references cited by the Examiner do not teach each and every limitation claimed by Appellant. Appellant respectfully requests that this Board find independent claims 1, 29 and 49 and all of the dependent claims in claim groupings c-h that depend therefrom to be patentable.

Issues (i)-(j): Issue (i) Whether claims 47, 57, 59, 60-62 should stand rejected under 35 U.S.C. 103(a) as being unpatentable over UK Patent Application No. 2, 073, 576A of Berlit, *et al.* in view of U.S. Patent No. 6,202,348 issued to Reiger and U.S. Patent No. 5,852,896 issued to Flasch;

Issue (j). whether claim 58 should stand rejected under 35 U.S.C. 103(a) as being unpatentable over UK Patent Application No. 2, 073, 576A of Berlit, *et al.* as modified by U.S. Patent No. 6,202,348 issued to Reiger and U.S. Patent No. 5,852,896 issued to Flasch and further in view of European Patent Application No. 300 578A of Van der Goorbergh.

Claims 47 and 57 are independent claims. Claims 58, 59, 60 and 62 depend from independent claim 57.

Appellant claims a method of growing a plant in-ground, comprising, *inter alia*, placing growth medium in a container comprising a bilayer consisting essentially of a biodegradable root-impenetrable outer layer bonded to an inner root-penetrable material. (Claim 47). Appellant further claims a root growth barrier comprising, *inter alia*, a polyethylene sheet bonded to a porous fabric layer. (Claim 57).

The Examiner explains that these rejections are based upon Berlit as described above and that the biodegradable concept and polyethylene are taught by Flasch and the in-ground and spun bonded needle punched fabric are taught by Reiger. (Final Office Action, ¶ 11). The Examiner further explains that Van der Goorbergh teaches the white outer sheet. (Final Office Action, ¶ 12).

For the same reasons as provided by Appellant, *supra*, Berlit does not suggest, teach or otherwise disclose a root-impenetrable outer layer bonded to an inner root-penetrable material nor does Berlit disclose a polyethylene sheet bonded to a porous fabric layer, all limitations claimed by Appellant. Appellant asserts that a *prima facie* case of obviousness has not been presented. The Examiner has impermissibly used information gleaned only from Appellant's specification to modify Berlit in converting the laminated layers of Berlit to the bonded materials of a toot-tip-trapping material and root-impenetrable material of Appellant. The use of

Appellant's specification as a blue print to modify Berlit is an impermissible use of hindsight obviousness analysis. Therefore, Appellant respectfully requests this Board to find that independent claims 47 and 57 are patentable as well as claims 58, 59 and 60-62, which depend therefrom.

SUMMARY

In summary, the references cited by the Examiner do not suggest, teach or otherwise disclose all the limitations claimed by Appellant nor has the Examiner presented any evidence to support the modification or combination of references cited.

Regarding Issue (a), Berlit does not describe, either expressly or inherently, each and every element claimed by Appellant. Berlit does not disclose the limitations claimed by Appellant of a root-tip-trapping material (claims 1, 29, 46, and 48) or of a porous fabric (claim 49). Furthermore, Berlit does not sufficiently describe Appellant's claimed invention to have placed the public in possession of it.

Regarding Issue (b), Berlit does not teach, suggest or otherwise disclose root-tip-trapping material or a porous fabric as part of the laminate materials forming the Berlit plant container, both of which are limitations claimed by Appellant. Furthermore, the Examiner has failed to provide any evidence to justify the modification made to Berlit in converting the Berlit co-extruded laminates into Appellant's claimed root-tip-trapping material. Finally, Appellant asserts that the Examiner has impermissibly used information gleaned only from Appellant's specification in rejecting Appellant's claimed invention.

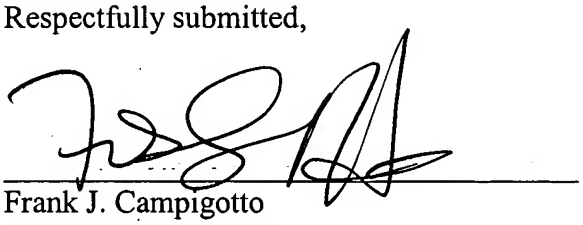
Regarding Issues (c)-(h), the Examiner has failed to show that Berlit teaches, suggests or otherwise discloses a root-tip-trapping material or a porous fabric as claimed by Applicant. Therefore, except for the Examiner's impermissible use of hindsight obviousness analysis to

modify Berlit by using information gleaned only from Appellant's Specification and using that information as a blueprint to modify Berlit to the claimed invention, the references cited by the Examiner do not teach each and every limitation claimed by Appellant.

Regarding Issues (i)-(j), the Examiner has failed to show that Berlit suggest, teaches or otherwise discloses a root-impenetrable outer layer bonded to an inner root-penetrable material nor does Berlit disclose a polyethylene sheet bonded to a porous fabric layer, all limitations claimed by Appellant.

WHEREFORE, Appellant respectfully requests that the Board find that the claims 1-65 presented on appeal are patentable.

Respectfully submitted,



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APPENDIX

APPENDIX A

CLAIMS ON APPEAL

1. (Original) A root growth barrier, comprising a layer of a root-tip-trapping material bonded to a layer of a root-impenetrable material.

2. (Original) The barrier of claim 1, wherein the root-impenetrable material is water-impenetrable.

3. (Original) The barrier of claim 1, wherein the root-tip-trapping material comprises greater than 10 root-tip-trapping elements per square inch.

4. (Original) The barrier of claim 1, wherein the root-tip-trapping material is a porous fabric.

5. (Previously Presented) The barrier of claim 4, wherein the porous fabric has a weight per square yard of between 2 and 10 ounces.

6. (Previously Presented) The barrier of claim 5, wherein the porous fabric has a weight per square yard of between 4 and 6 ounces.

7. (Original) The barrier of claim 4, wherein the porous fabric has openings between 1/16 and ¼ inch.

8. (Original) The barrier of claim 4, wherein the porous fabric is a spun bonded, needle punched fabric.

9. (Original) The barrier of claim 8, wherein the porous fabric is selected from polyester, polypropylene or other olefin fiber.

10. (Original) The barrier of claim 4, wherein the porous fabric is a woven or knitted fabric.

11. (Original) The barrier of claim 10, wherein the porous fabric is degradable.

12. (Original) The barrier of claim 11, wherein the porous fabric is cotton.

13. (Original) The barrier of claim 4, wherein the porous fabric is opaque.

14. (Original) The barrier of claim 13, wherein the porous fabric is black or gray.

15. (Original) The barrier of claim 1, wherein the root-tip-trapping material is bonded onto the root-impenetrable material by a method selected from gluing, laminating and combinations thereof.

16. (Original) The barrier of claim 1, wherein the root-impenetrable material is comprised of a plurality of layers.

17. (Original) The barrier of claim 1, wherein the root-impenetrable material is reflective.

18. (Original) The barrier of claim 1, wherein the root-impenetrable material is a polymer sheet.

19. (Original) The barrier of claim 1, wherein the root-impenetrable material is selected from polyethylene and polypropylene.

20. (Original) The barrier of claim 1, wherein the root-impenetrable material is metal.

21. (Original) The barrier of claim 1, wherein the root-impenetrable material is a metal foil.

22. (Original) The barrier of claim 1, wherein the root-impenetrable material is aluminum foil.

23. (Previously Presented) The barrier of claim 1, wherein the root-impenetrable layer is impervious to UV radiation.

24. (Original) The barrier of claim 18, wherein root-impenetrable material is white.

25. (Original) The barrier of claim 1, wherein the root-impenetrable layer has a thickness between 2 and 10 mils.

26. (Original) The barrier of claim 1, wherein the root-impenetrable layer has a thickness between 3 and 5 mils.

27. (Original) The barrier of claim 1, wherein the root-impenetrable material is biodegradable.

28. (Original) The barrier of claim 27, wherein the biodegradable material is selected from wood, fiber, starch, polyhydroxyalkanoates, polycaprolactone, polylactide aliphatic copolymer, polylactide, aliphatic polyester, an aliphatic-aromatic copolymer, and combinations thereof.

29. (Original) An apparatus, comprising:

a root-impenetrable container for growing a plant; and

a root-tip-trapping material bonded to an inner wall of the container.

30. (Original) The apparatus of claim 29, wherein the container is formed into a shape selected from cylinders, squares, rectangles, cubes, blocks, hexagons, octagons, ovals, pentagons, triangles and circles.

31. (Original) The apparatus of claim 29, wherein the container has a diameter between 2 and 96 inches.

32. (Original) The apparatus of claim 29, wherein the container has a diameter between 5 and 60 inches.

33. (Original) The apparatus of claim 29, wherein the root-tip-trapping material is a spun bonded, needle punched fabric.

34. (Original) The apparatus of claim 33, wherein the fabric has a density between 2 and 10 ounces per square yard.

35. (Original) The apparatus of claim 33, wherein the fabric has a density between 4 and 6 ounces per square yard.

36. (Original) The apparatus of claim 29, wherein the root-impenetrable container comprises polyethylene and the root-tip-trapping material comprises spun bonded fabric.

37. (Original) The apparatus of claim 36, wherein the polyethylene has a thickness between 2 and 10 mils.

38. (Original) The apparatus of claim 36, wherein the polyethylene has a thickness between 3 and 5 mils.

39. (Original) The apparatus of claim 36, wherein the polyethylene contains additives.

40. (Original) The apparatus of claim 39, wherein the additives comprise UV inhibitors.

41. (Previously Presented) The apparatus of claim 29, wherein the root-tip-trapping material is black or grey.

42. (Original) The apparatus of claim 29, wherein the root-tip-trapping material is a woven or knitted fabric.

43. (Original) The apparatus of claim 29, wherein the container is assembled by sewing or stapling.

44. (Original) The apparatus of claim 33, wherein the container is a grow-bag or in-ground container.

45. (Original) The apparatus of claim 33, wherein the container is a production pot in pot-in-pot production.

46. (Original) A method of growing a plant in a pot comprising the steps of:

disposing a bilayer root growth barrier consisting essentially of a root-tip-trapping inner material bonded to a root-impenetrable material;

disposing a growth medium adjacent to the root growth barrier; and

adding a plant to the growth medium.

47. (Original) A method of growing a plant in-ground, comprising the steps of:

placing growth medium in a container comprising a bilayer consisting essentially of a biodegradable root-impenetrable outer material bonded to an inner root-penetrable material; and

adding a plant to the growth medium.

48. (Original) A root growth barrier, consisting essentially of:

a layer of a root-tip-trapping material bonded to a layer of a root-impenetrable material .

49. (Original) A root growth barrier, comprising:

a polymer sheet having a surface bonded to a porous fabric.

50. (Previously Presented) The barrier of claim 49, wherein the porous fabric has a weight per square yard of between 4 and 6 ounces.

51. (Original) The barrier of claim 49, wherein the porous fabric has openings between 1/16 and ¼ of an inch.

52. (Original) The barrier of claim 49, wherein the porous fabric is selected from spun bonded and needle punched fabric, woven fabric, and knitted fabric.

53. (Original) The barrier of claim 49, wherein the porous fabric is selected from polyester, polypropylene and cotton.

54. (Original) The barrier of claim 49, wherein the polymer sheet is white and the porous fabric is black.

55. (Previously Presented) The barrier of claim 49, wherein the porous fabric is bonded onto a polyethylene sheet by a method selected from gluing, laminating and combinations thereof.

56. (Previously Presented) The barrier of claim 49, wherein the polymer sheet is a polyethylene sheet has a thickness between 2 and 10 mils.

57. (Original) A root growth barrier, comprising:

a polyethylene sheet; and

a porous fabric layer bonded to a surface of the polyethylene sheet, wherein the porous fabric layer is selected from spun bonded and needle punched fabric, woven fabric, and knitted fabric.

58. (Original) The barrier of claim 57, wherein the polyethylene sheet is white and the porous fabric layer is black.

59. (Original) The barrier of claim 57, wherein the porous fabric layer is bonded onto the polyethylene sheet by a method selected from gluing, laminating and combinations thereof.

60. (Original) The barrier of claim 57, wherein the polyethylene sheet has a thickness between 2 and 10 mils.

61. (Previously Presented) The barrier of claim 57, wherein the porous fabric layer has a weight per square yard of between 2 and 10 ounces.

62. (Previously Presented) The barrier of claim 57, wherein the porous fabric layer has a weight per square yard of between 4 and 6 ounces.

63. (Original) The barrier of claim 1, wherein the root-tip-trapping layer comprises a plurality of strata.

64. (Original) The barrier of claim 25, wherein the root-impenetrable material is water-impenetrable.

65. (Original) The barrier of claim 1, wherein the root-tip-trapping material comprises greater than 100 root-tip-trapping elements per square inch.